Avista's 2018 Natural Gas IRP

October 23, 2018

Avista Facts

STATISTICS

State	Total Customers	% of Total
WA	163,000	47%
OR	102,000	29%
ID	83,000	24%
Total	348,000	100%

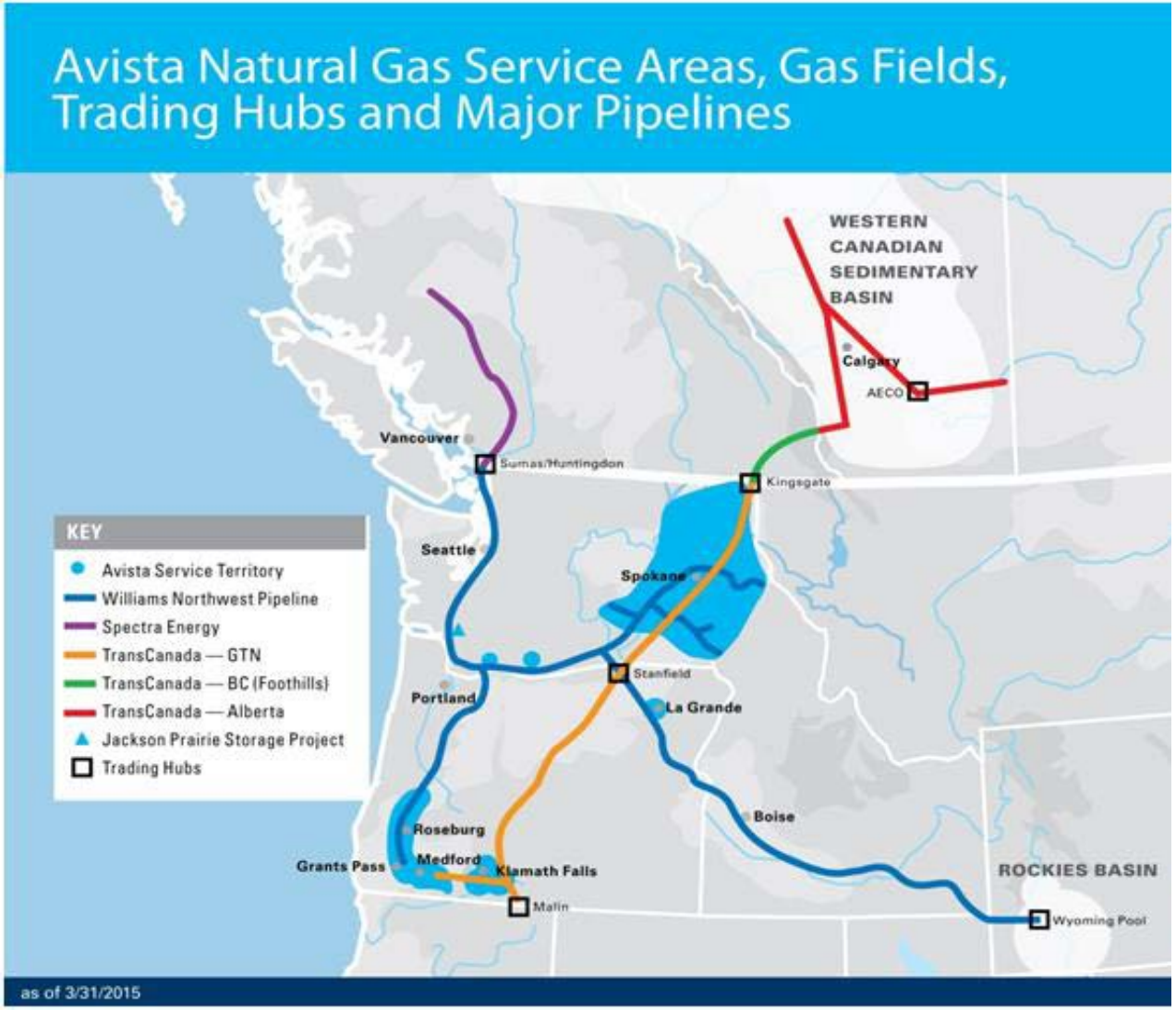
PIPELINES

- **Williams Northwest Pipeline (NWP)**
- **TransCanada Gas Transmission Northwest (GTN)**
- **TransCanada Foothills**
- **TransCanada Alberta**
- **Spectra Energy (Westcoast)**

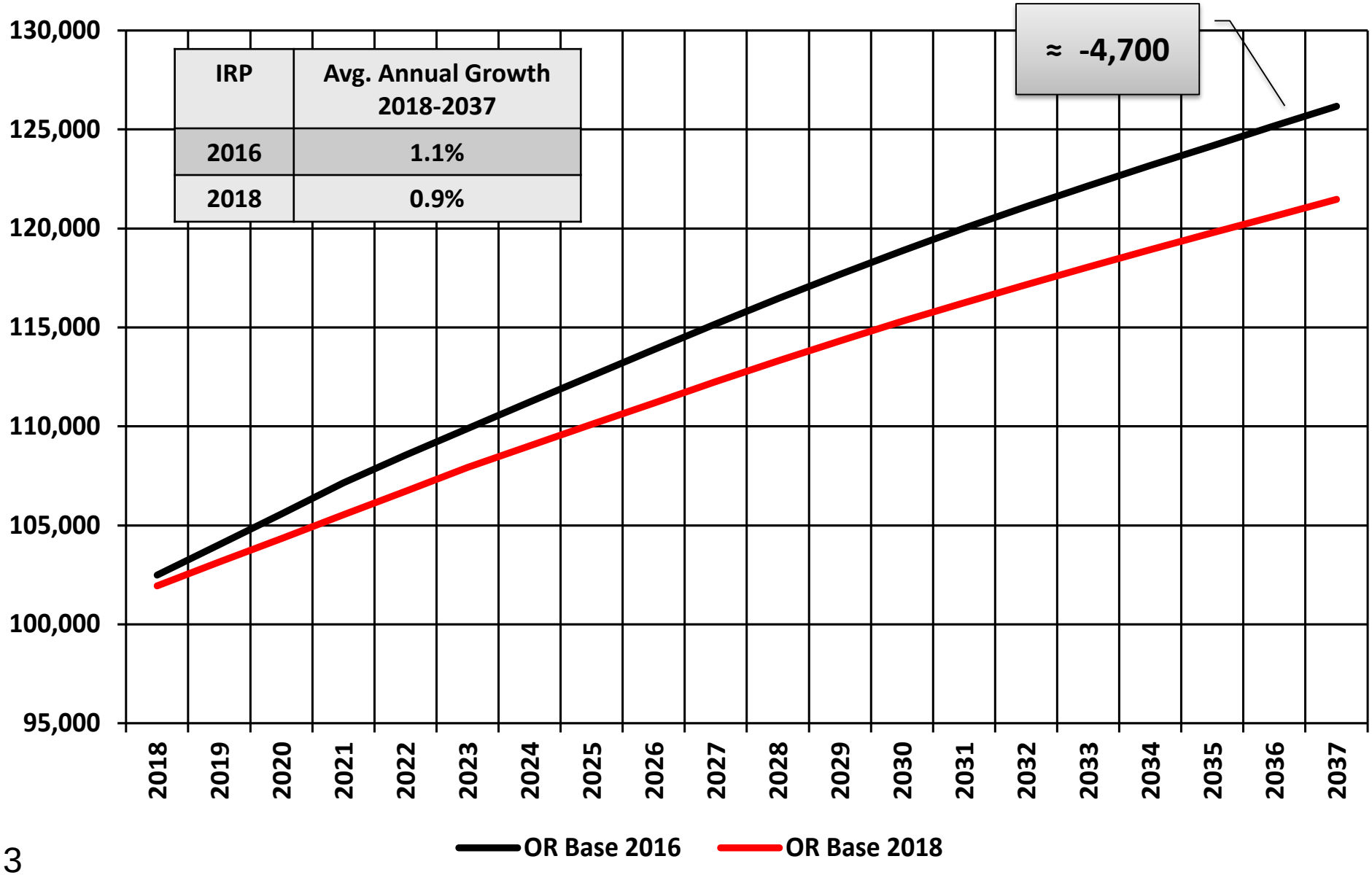
STORAGE

- **Jackson Prairie Storage**

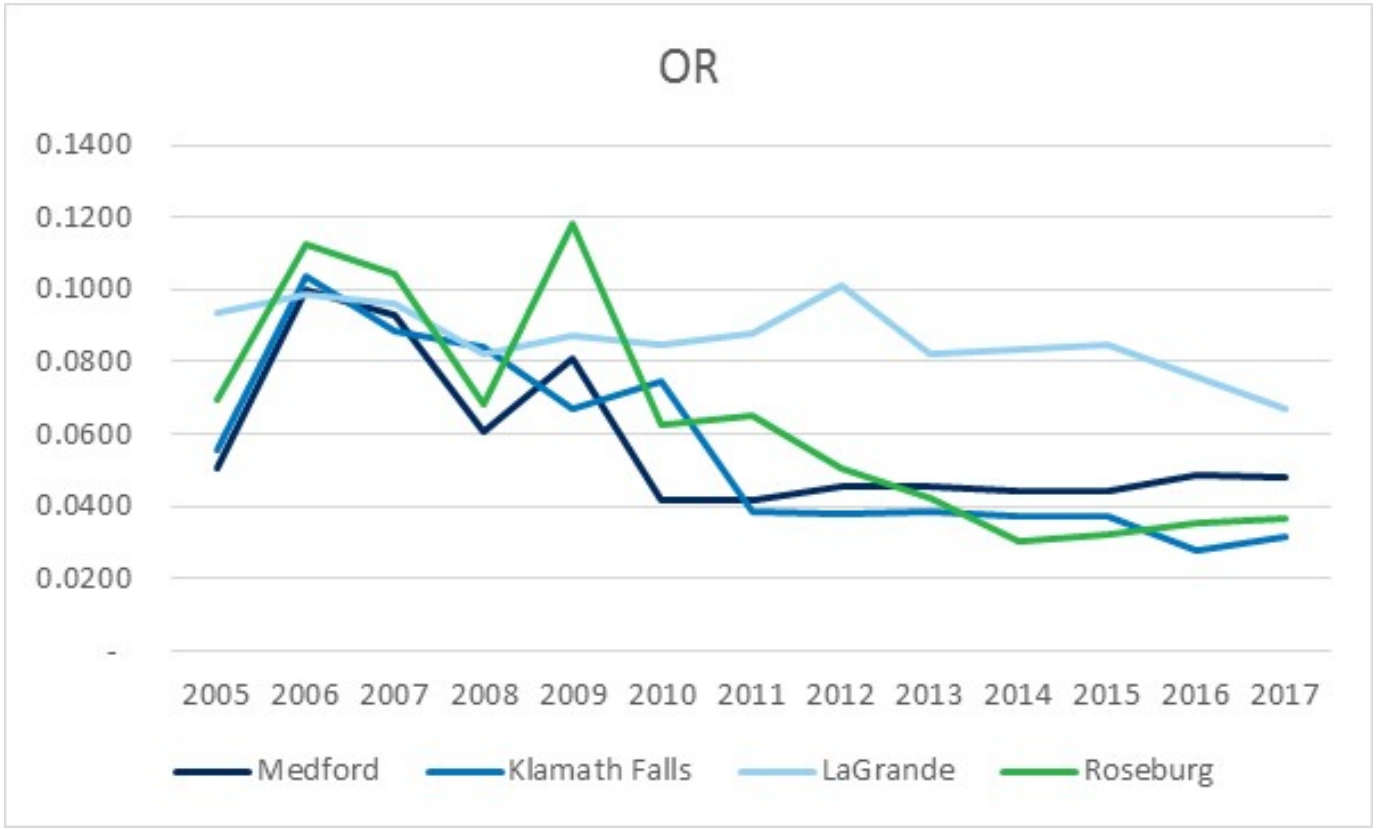
  One third owner with Puget Sound Energy and Williams Pipeline



OR Region Firm Customers: 2018 IRP and 2016 IRP



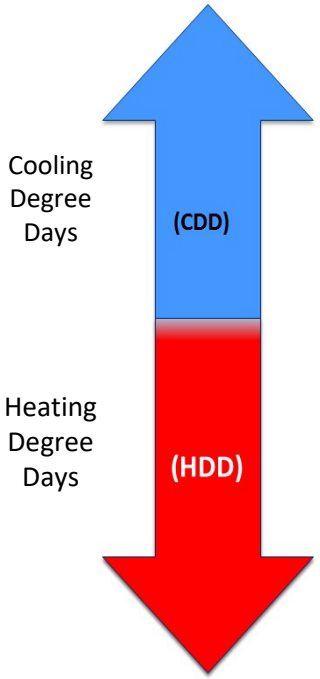
Oregon Base Coefficients



July and August Average

Weather Planning Standard Assumptions

Area	Coldest on Record	°Fahrenheit
	HDD	Average
Klamath Falls	72	-7
La Grande	74	-9
Medford	61	4
Roseburg	55	10



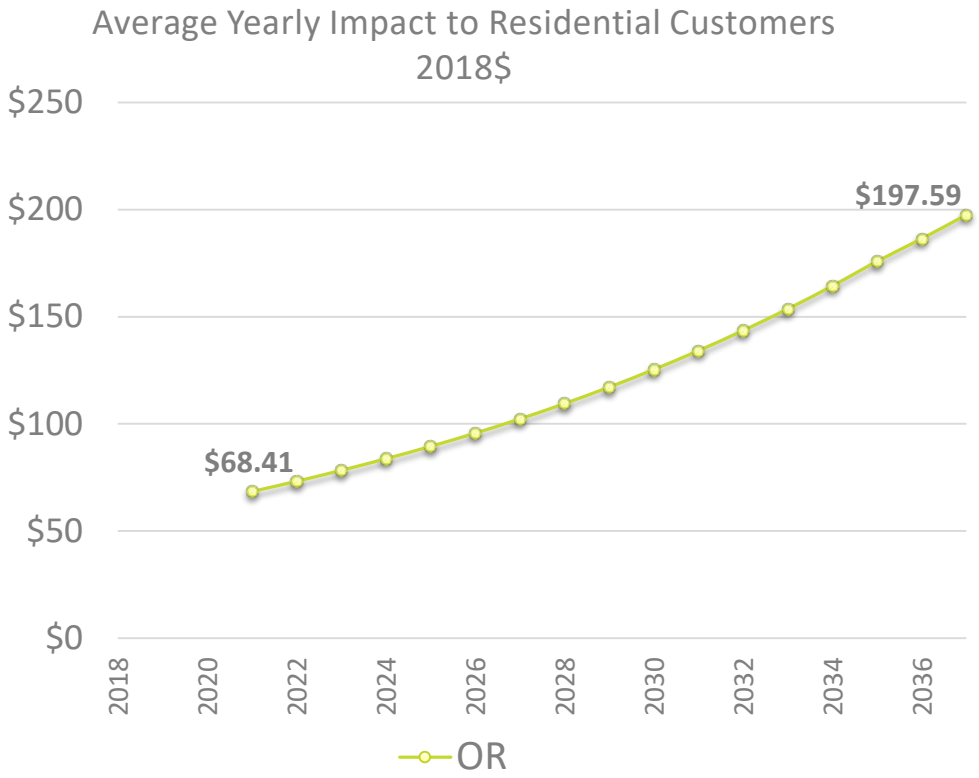
Temp (°F)		Degree Days
100	=	35
90	=	25
80	=	15
70	=	5
65	=	0
60	=	5
50	=	15
40	=	25
30	=	35
20	=	45
10	=	55
0	=	65
-10	=	75
-20	=	85

Coldest on Record Dates

Klamath Falls – January 6, 2017
La Grande – January 23, 1996
Medford – December 9, 1972
Roseburg – December 22, 1990

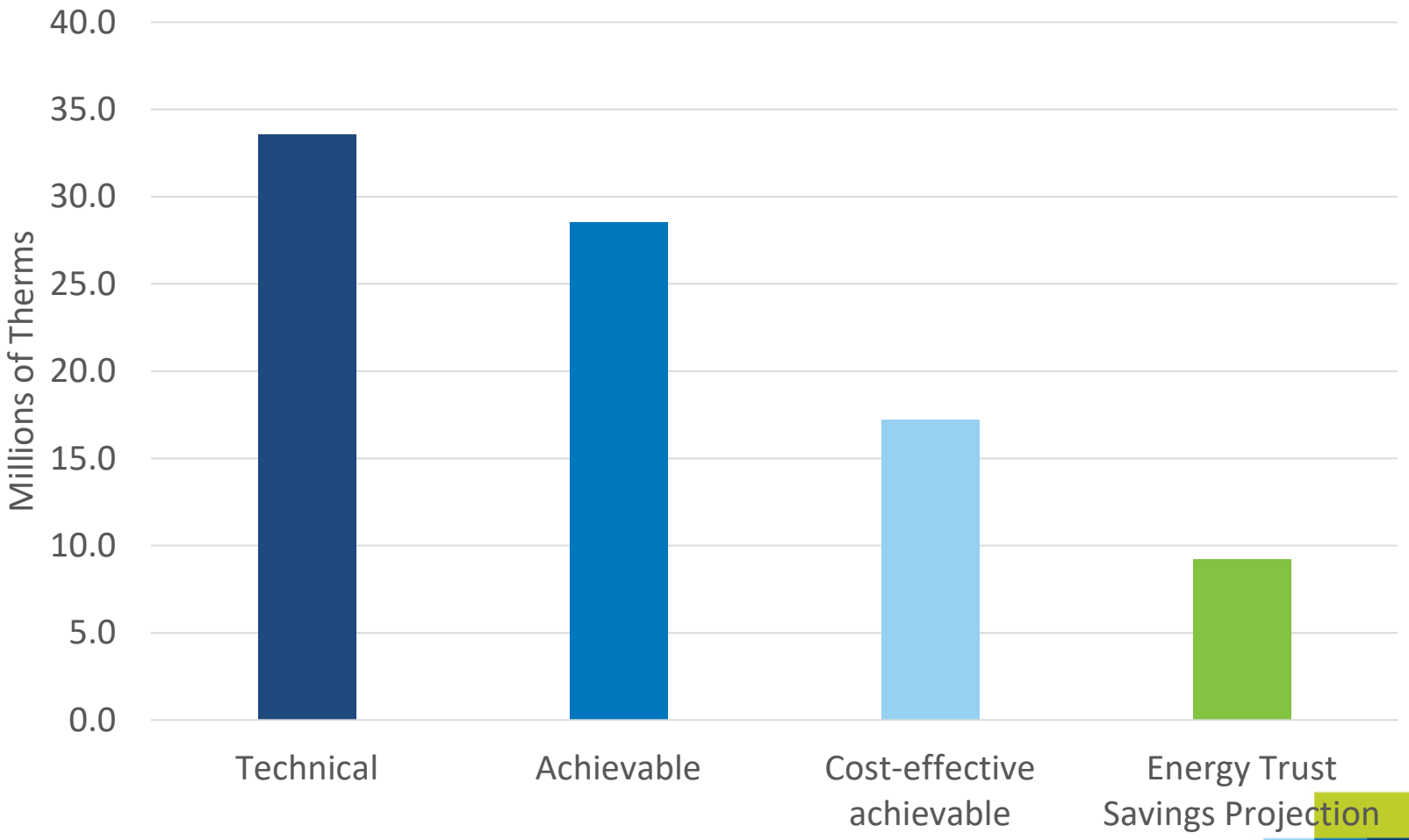
Oregon territories Carbon Tax

- OR – Cap and Investment Program SB 1070
  - Avista's price assumption are based on CA cap and trade program (2018 annual price of $14.53 per MTCO2e)
    - Begins in 2021 at $17.86 and increases by 5% plus inflation each year until reaching $51.58 in 2037



2018 Oregon Henry Hub Expected Price Including Carbon Adders

Overall Cumulative Savings Results – Millions of Therms



Jackson Prairie – Oregon owned

Owned Jackson Prairie

- 823,000 Dth of Capacity with approximately 52,000 Dth/d of deliverability

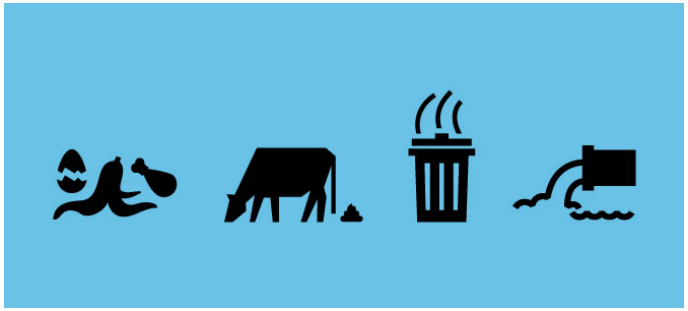
Leased Jackson Prairie

- 95,565 Dth of Capacity with approximately 2,654 Dth/d of deliverability

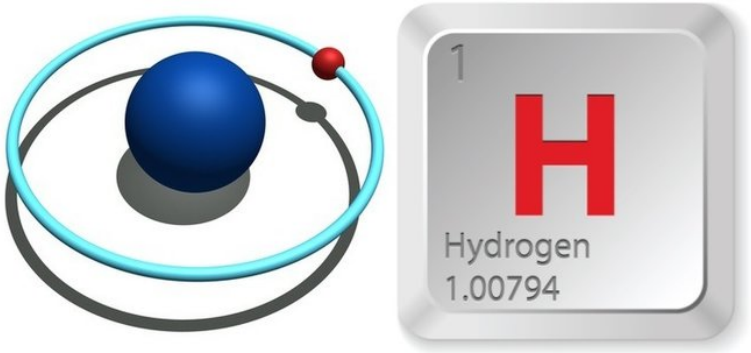
Decarbonization of Natural Gas

- Renewable Natural Gas (RNG)
- Energy Efficiency
- Hydrogen (H2)

$1.10 – $3.90 per therm



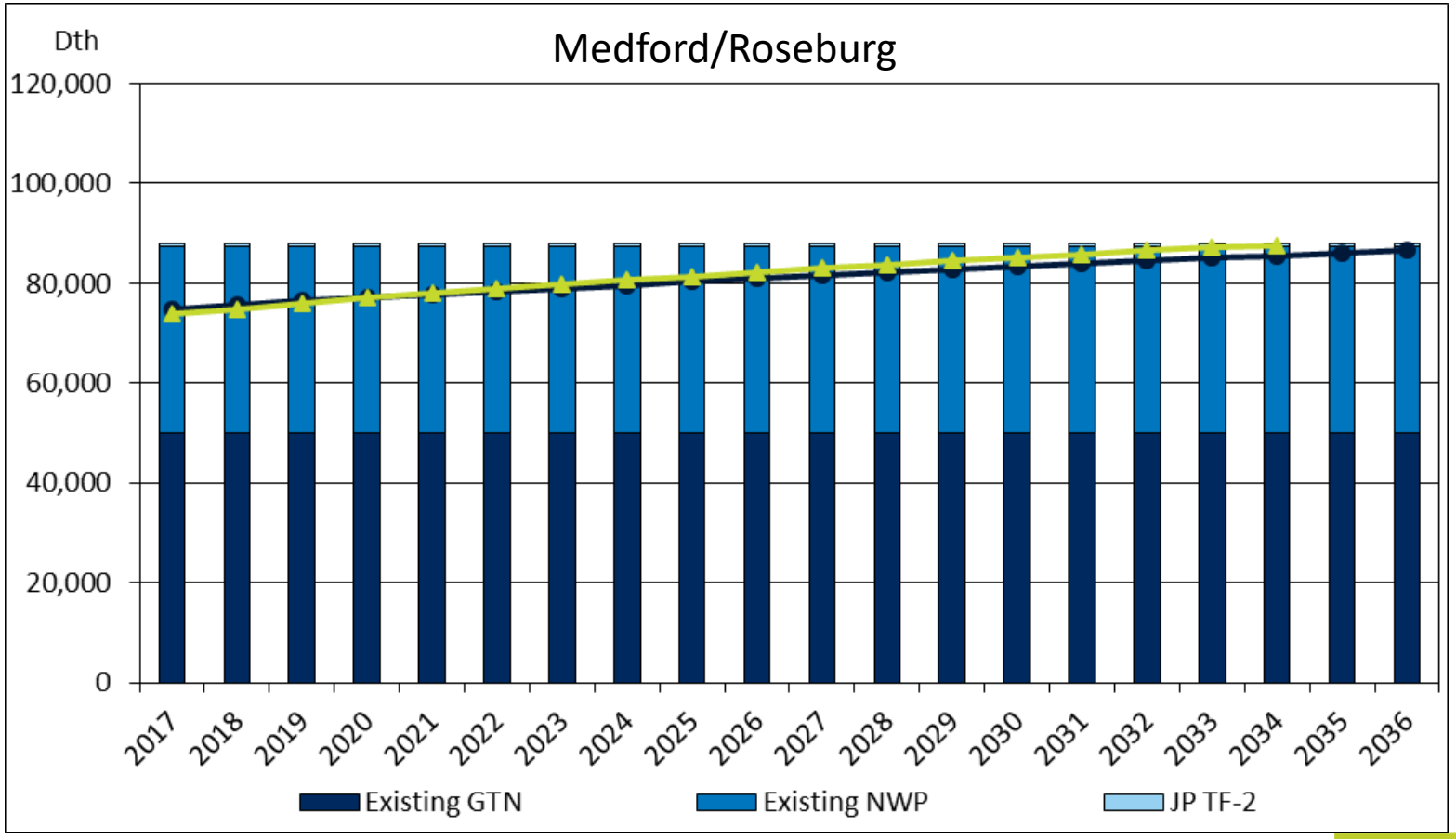
$4+ per therm



$0.49 per therm

Existing Resources vs. Peak Day Demand

Expected Case – Oregon Territory



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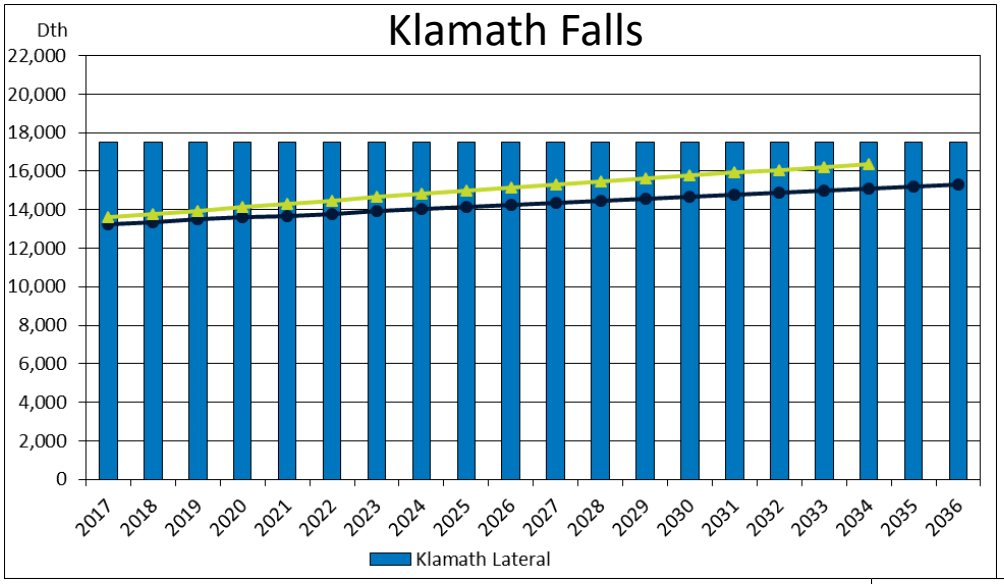

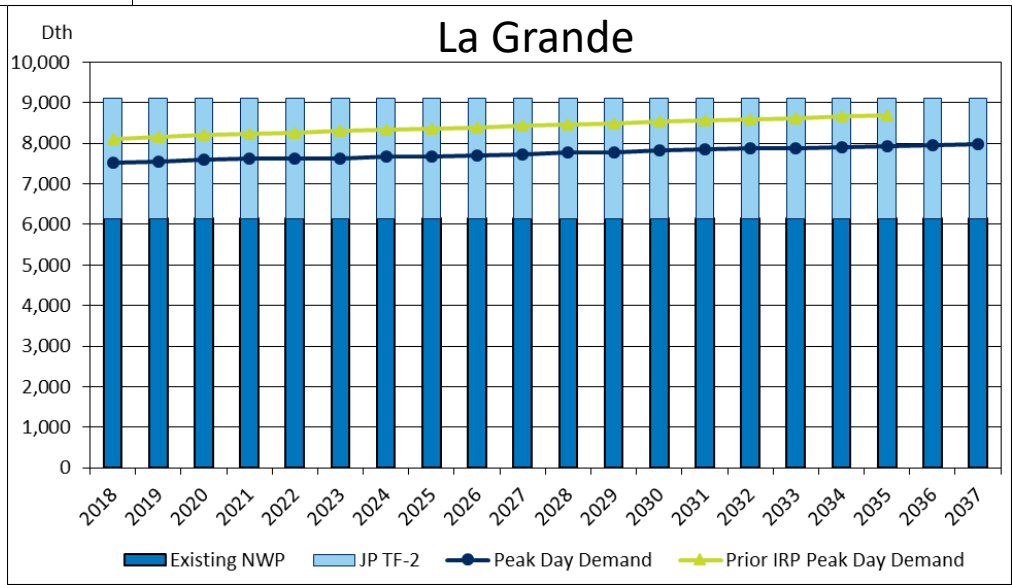

2020 IRP - Action Items

- **Dynamic DSM** - In the 2020 IRP, each portfolio will have the ability to select conservation to meet unserved customer demand. Avista will explore methods to enable a dynamic analytical process for the evaluation of conservation potential within individual portfolios.
- **Distribution as supply option** - Work with Staff to get clarification on types of natural gas distribution system analyses for possible inclusion in the 2020 IRP.
- **Distribution in avoided cost calculation** - Work with Staff to clarify types of distribution system costs for possible inclusion in our avoided cost calculation.
- **Weather standard** - Revisit coldest on record planning standard and discuss with TAC for prudency.
- **Supply resource optimization benefits** - Provide additional information on resource optimization benefits and analyze risk exposure.
- **DSM**—Integration of ETO and AEG/CPA data. Discuss the integration of ETO and AEG/CPA data as well as past program(s) experience, knowledge of current and developing markets, and future codes and standards.
- **Carbon Costs** – consult Washington State Commission's *Acknowledgement Letter Attachment* in its 2017 Electric IRP (Docket UE-161036), where emissions price modeling is discussed, including the cost of risk of future greenhouse gas regulation, in addition to known regulations.

2020 IRP - Action items (cont.)

- Regarding high pressure distribution or city gate station capital work, Avista does not expect any supply side or distribution resource additions to be needed in our Oregon territory for the next four years, based on current projections. However, should conditions warrant that capital work is needed on a high pressure distribution line or city gate station in order to deliver safe and reliable services to our customers, the Company is not precluded from doing such work. Examples of these necessary capital investments include the following:
  - Natural gas infrastructure investment not included as discrete projects in IRP
    - Consistent with the preceding update, these could include system investment to respond to mandates, safety needs, and/or maintenance of system associated with reliability
    - Including, but not limited to Aldyl A replacement, capacity reinforcements, cathodic protection, isolated steel replacement, etc.
  - Anticipated PHMSA guidance or rules related to 49 CFR Part § 192 that will likely requires additional capital to comply
    - Officials from both PHMSA and the AGA have indicated it is not prudent for operators to wait for the federal rules to become final before improving their systems to address these expected rules.
  - Construction of gas infrastructure associated with growth
  - Other special contract projects not known at the time the IRP was published
  - Other non-IRP investments common to all jurisdictions that are ongoing, for example:
    - Enterprise technology projects & programs
    - Corporate facilities capital maintenance and improvements
- **Funding of ETO** - Avista will ensure Energy Trust (ETO) has sufficient funding to acquire therm savings of the amount identified and approved by the Energy Trust Board.